

Remarks:

The pending claims are 10-28. Claim 10 has been amended. No new matter is introduced therein.

Introduction

The invention claimed herein is a stent (claims 10-21) and the method of using such a stent (claims 22-28), characterized by a tubular construction, comprising a plurality of adjacent hoops that are aligned along the tubular axis. Each hoop comprises a series of elongate elements which meet one another and form vertices. At least some of the vertices axially abut and are connected to oppositely pointed vertices of an adjacent hoop. Each hoop is separate and distinct from the other hoops. There is also a graft that closes the openings of the stent structure.

A. Summary of Pending Rejections

In the Office Action of February 12, 2003, claims 10-11, 13-16, 18, and 21 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 5,360,443 to Barone et al.; claims 12 and 19-20 were rejected under 35 U.S.C. §103(a) as unpatentable over Barone in view of U.S. Patent No. 4,503,569 to Dotter; claims 19-20 were rejected under 35 U.S.C. § 103(a) as unpatentable over Barone et al.; claims 22-23, 25-26, and 28 were rejected under 35 U.S.C. §103(a) as unpatentable over Barone et al. in view of U.S. Patent No. 4,580,568 to Gianturco; and claims 24 and 27 were rejected under 35 U.S.C. § 103(a) as unpatentable over Barone et al. in view of Gianturco and further in view of Dotter.

Claims 10-12 and 18-19 were also rejected for obviousness-type double patenting over U.S. Patent No. 5,683,448.

B. Response to Double-Patenting Rejection

Responsive to the double patenting rejection, upon notification that this application is otherwise allowable, Applicant will submit a Terminal Disclaimer To Overcome Double Patenting Rejection, disclaiming the terminal part of the statutory term of any patent granted on this application, which would extend beyond the expiration date of the full statutory term defined in 35 U.S.C. §§ 154, 155, 156 and 173 of United States Patent No. 5,683,448. However,

Applicant does not concede that the claims presently applied for are necessarily obvious in view of the cited references.

C. Correction of Typographical Error in Claim 10

Claim 10 has been amended to correct a typographic error. Specifically, lines 2-3 of claim 10 previously recited "the axis of said hoop stent." Since line 2 has already referred to the stent as a "tubular stent," line 3 of claim 10 has been amended to change the recitation of "said hoop stent" to "said tubular stent." Amending line 3 in this way now makes the recitation on line 3 consistent with the recitation on lines 2-3.

D. Response to Rejections Under 35 U.S.C. § 102 and § 103

1. The Rejection of Claims 10-11, 13-16, 18 and 21

Claims 10-11, 13-16, 18, and 21 have been rejected under 35 U.S.C. §102(e) as anticipated by Barone et al. (U.S. Patent No. 5,360,443). Claim 10 has been amended to recite important features that are not disclosed or suggested by Barone. These features are discussed in detail below.

Claim 10 has been amended in two places to recite that the hoops are "separate and distinct." Specifically, lines 1-2 of claim 10 now recite "a tubular stent having a plurality of separate and distinct hoops." Similarly, line 3 now recites "each of said separate and distinct hoops."

"Separate" is defined as "set or kept apart;" "detached;" "not shared with another;" "existing by itself." (Webster's Ninth New Collegiate Dictionary 1990). "Distinct" is defined as "not the same; separate; individual." (Webster's New World Dictionary (Second College Edition 1984)).

The recitation of "separate and distinct hoops" is supported by Figures 2-4, 9, and 10; and (in the Substitute Specification filed April 17, 2002) page 4, line 27-page 5, lines 2, 13-15; page 6, line 31-page 7, line 10 of the Substitute Specification.

Claim 10 also uses the term "distinct" to further emphasize the differences between, and among, adjacent hoops. The figures show that each hoop is not the same as other hoops and each hoop is an individual hoop.

Specifically, Figures 2-4 show two adjacent hoops which are separate and distinct from each other. That is, the hoops are individual hoops, they are not the same as other hoops, and they each exist by themselves. Because of the separate and distinct nature of the adjacent hoops, they need to be joined together by loop members 12. Furthermore, even when the individual separate and distinct hoops are joined by loop members 12 so that they form a cohesive unit, each of the separate and distinct hoops continue to maintain their individual character.

Similarly, Figure 10 shows how the stent is made. Specifically, a predetermined length of wire is bent in a zig-zag fashion between the pins 14 of the mandrel 15 and around the mandrel. (page 6, line 31 - page 7, line 2). Figure 10 shows that adjacent apices are not connected together while they are on the mandrel and they must be joined by tying them together. Thus, Figure 10 further demonstrates the separate and distinct nature of adjacent hoops.

In contrast, Figure 2 of Barone et al. (which the office action indicates to be as further shown in Figures 5A-5B of Hess, U.S. Patent No. 5,197,978), shows a series of rhombic shaped perforations which form a "rhombic lattice" in a tube. Adjacent rhombic shapes are part of a grid-like structure. To the extent the grid members defining this lattice include "apices", these apices of adjacent parts of the lattice are not only connected to, but literally part of, apices adjacent. (See, Hess, col. 7, lines 28-41). There are no individual shapes. The shapes are not kept apart or detached from one another. They do not abut one another. Stated differently, parts of one hoop share common parts with adjacent hoops. Consequently, none of the hoops exists by itself. Adjacent rhombic structures are never separate and distinct from one another. They are always connected to each other. Since the hoops in Barone et al. are not separate and distinct, Barone et al. in no way anticipates all of the recitations in claim 10 (as amended), and, consequently, claim 10 (as amended) is not subject to rejection under 35 U.S.C. § 102(e) as anticipated by Barone et al. nor is the invention of claim 10 (as amended) in any way suggested by Barone et al.

Claims 11, 13-16, 18, 21 depend from amended claim 10. Since amended claim 10 is not subject to rejection under 35 U.S.C. § 102(e) as anticipated by Barone et al., dependent claims 11, 13-16, 18, 21 are also not subject to rejection under 35 U.S.C. § 102(e) as anticipated by Barone et al. Applicant respectfully submits therefore that this rejection should be withdrawn.

2. The rejection of claims 12 and 19-20

Claims 12 and 19-20 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Barone et al. in view of Dotter (U.S. Patent No. 4,503,569). Claims 12 and 19-20 depend from amended claim 10. As shown above, Barone et al. does not disclose or suggest certain important features recited in amended claim 10. For example, Barone et al. does not disclose or suggest "a plurality of separate and distinct hoops." It also does not suggest separate and distinct hoops in combination with the other features recited in amended claim 10. Therefore, amended claim 10 is not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Barone et al.

Dotter also does not disclose or suggest important features recited in amended claim 10. First, Dotter does not disclose or suggest "vertices axially pointing in a direction along the axis of the stent." Instead, the vertices point in a direction that is orthogonal to the axis of the stent. Second, Dotter does not disclose or suggest "at least some of said vertices axially abut." Instead, the vertices are adjacent to each other in a direction that is orthogonal to the axis. Third, Dotter does not disclose or suggest "at least some of said vertices. . .are individually connected to oppositely pointed vertices of elongate members of an adjacent hoop." Fourth, Dotter does not show or suggest separate and distinct hoops. Therefore, amended claim 10 is not anticipated or suggested by Dotter in whole or in part. Claims 12 and 19-20 depend from amended claim 10, and are patentably distinct from the combination upon which this 35 U.S.C. 103(a) rejection depends. Applicant therefore contends that this rejection should also be withdrawn.

Claims 19-20 have also been rejected under 35 U.S.C. § 103(a) as unpatentable over Barone et al. Claims 19-20 depend from amended claim 10. Since, as shown above, amended claim 10 is not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Barone, claims 19-20 are also not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Barone et al. Applicant therefore contends that this rejection should also be withdrawn.

3. The rejection of claims 22-23, 25-26, and 28

Claims 22-23, 25-26, and 28 have been rejected under 35 U.S.C. §103(a) as unpatentable over Barone in view of U.S. Patent No. 4,580,568 to Gianturco. Claim 22 is a method claim. Step a. in claim 22 recites "providing a stent-graft combination as recited in claim 10." As shown above, the stent in Barone does not disclose or suggest the stent as now recited in amended claim 10. Since step a. in claim 22 incorporates amended claim 10 by reference, Barone does not disclose or suggest step a.

Gianturco does not remedy this deficiency in Barone et al. because it also does not disclose or suggest a stent as recited in amended claim 10. Accordingly, claim 22 is not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Barone et al. in view of Gianturco.

Claims 23 and 25-26 depend from claim 22. Since claim 22 is not subject to rejection for the reasons set forth above, claims 23 and 25-26 are also not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Barone et al. in view of Gianturco.

Claim 28 is also a method claim. It recites, in part, the step of "providing a stent graft combination as recited in claim 10." For the same reasons as stated regarding claim 22, neither Barone et al. nor Gianturco disclose or suggest this step because neither of them disclose or suggest the stent graft combination recited in amended claim 10. Therefore, claim 28 is not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Barone et al. in view of Gianturco. Withdrawal of this rejection is therefore respectfully requested.

4. The rejection of claims 24 and 27

Claims 24 and 27 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Barone et al. in view of Gianturco and further in view of Dotter. Claims 24 and 27 depend from claim 22. Step a. in claim 22 recites the step of "providing stent-graft combination as recited in claim 10." As shown above, none of these prior art references discloses or suggests a stent-graft combination as recited in claim 10 as amended. Therefore, none of these references anticipate the invention recited in claim 22 and the combination does not suggest, much less render obvious, claims 24 and 27. This rejection therefore should also be withdrawn.

E. Response to Objection to Claim 17

Applicant acknowledges with thanks the Examiner's indication that claim 17 is objected to as being dependent upon a rejected base claim, but that it would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has not rewritten claim 17 at this time because he believes that base claim 10, as amended, is allowable.

F. Requested Acknowledgement of Domestic Priority

The opening paragraph of this application indicates that the present application is the latest application in a series of prior applications and claims priority under 35 U.S.C. § 120 to these earlier applications. Acknowledgement thereof is respectfully requested.

G. Summary

For all of the foreign reasons, applicant contends that all pending claims are in condition for allowance and early notification thereof is respectfully required. The Examiner is requested to call one of the Applicant's undersigned attorneys if any question remains or if it appears that some further amendment is necessary for allowance.

Respectfully Submitted,



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PFP:pb/b

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